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DEPARTMENT OF COMMERCE
BUREAU OF STANDARDS
WASHINGTON

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NATIONAL BUREAU OF STANDARDS

The Bureau of Standards is a part of the Department of Commerce and was established by an Act of Congress in 1901; it is charged with the development, construction, and maintenance of reference and working standards and their intercomparison, improvement, and application in science, engineering, industry, and commerce. Standards are divided into five classes, as follows:

(1) Standards of Measurement;
(Measurements of length, mass, time, heat, electricity, etc.)

(2) Standard Constants;
(The fixed relations between materials and energy, such as mechanical equivalents of heat, light, electricity, and gravitation)

(3) Standards of Quality;
(Specifications for material)

(4) Standards of Performance;
(Specifications of operative efficiency of machines and devices)

(5) Standards of Practice;
(Codes and regulations for governing construction, installation, and operation of buildings, machines, electrical transmission lines, and similar work)

The work of the Bureau is necessarily of an extremely varied character as will be evident from the above list. For purposes of organization, it has been found convenient to group together experts in similar lines of work irrespective of the class of standards dealt with. The Bureau is, therefore, divided into eleven scientific and technical divisions, each under a division chief, and every division is in turn subdivided into sections, each section dealing with a particular class of problems.

The divisions of the Bureau are: I. Electricity; II. Weights and Measures; III. Heat and Power; IV. Optics; V. Chemistry; VI. Mechanics and Sound; VII. Structural, Engineering and Miscellaneous Materials; VIII. Metallurgy; IX. Ceramics; X. Simplified Practice; and XI. Building and Housing.

Considering these in order, all questions in the field of electricity, whether they involve standards of measurement, performance, or practice, are referred to the Electrical Division. The determination of the correct value of a fundamental electrical unit or testing the performance of a motor would be carried out by this division.

The Division of Weights and Measures is concerned with all work in the field of weights and measures, from the calibration of the most accurate weights used in scientific laboratories and the measurement of a few millionths of an inch to the testing of railroad track scales and surveyors' tapes.

The Division of Heat and Power, as its name implies, is concerned with heat measurements of all sorts. Not only are thermometers and instruments for measuring high and low temperatures investigated by this division, but the work also includes the testing of heat engines, of which the familiar gasoline engine is a prominent example.

A great variety of scientific work depends upon the use of optical instruments and optical methods, and the Optical Division is concerned wholly with investigations in this field. The work includes spectroscopic analyses, the establishment of color standards, and the standardization of instruments used in the polariscopic tests of sugar.

Almost any test of a material involves a chemical analysis of some sort, and this work is done by the Chemistry Division. Much of this work is in cooperation with the other divisions of the Bureau and besides this any investigations in the field of chemistry are, of course, carried out by the Chemistry Division.

The Division of Mechanics and Sound is concerned with miscellaneous investigation and testing of engineering appliances and instruments, as well as work in the fields of aerodynamics and sound, particularly in connection with the testing of aircraft models and instruments and the measurement of the sound transmission of building materials.

The Division of Structural, Engineering and Miscellaneous Materials deals primarily with standards of quality for almost all the materials used in industrial work. Thus, standards for the quality of iron and steel, cement, concrete, lime, paper and paper products, leather, rubber, and textiles are established by this division.

Problems in connection with metals, except those involving the extraction of metals from ores, and the strength of fabricated metal parts, are investigated by the Division of Metallurgy. This is a very large field requiring investigation into the actual methods of production used in metallurgical plants. The equipment of the division for this purpose is unusually complete.

The ceramic industry, although a very old one, is only just now coming into its own in this country, and the Ceramic Division is aiding manufacturers by pointing out ways for the utilization of domestic clays, by setting standards for glass, including optical glass, and through studies of production processes.

The Division of Simplified Practice is endeavoring to reduce the number of sizes and types of articles in common use, through the concentration of manufacturers on the production of those sizes which are shown to be in greatest demand.

The Building and Housing Division is formulating standards for houses, with the object of securing better and more economical construction of dwellings. Allied problems, such as the zoning of municipalities, are also studied.

The equipment of the Bureau's laboratories is probably the finest in the world for investigational work. It is housed in 14 permanent and several temporary buildings located on a 35-acre tract of land a short distance beyond the more thickly populated portion of the city of Washington. It is easily reached by the Chevy Chase car line or by automobile along Connecticut Avenue.

The Bureau is required by law to carry out tests or investigations requested by the National or State Governments without charge. In the case of private individuals, certain investigations are undertaken where the results would seem to be of benefit to the public, the Bureau reserving the right to use the data thus obtained as it sees fit. Some routine testing is likewise done for private individuals and manufacturers where no commercial laboratory is fitted to perform the work. In these cases nominal fees are charged for the testing which are turned in to the Treasury Department.

Results of the Bureau's investigations and researches are made available for the public through its publications. These comprise five series entitled: Scientific Papers, Technologic Papers, Circulars, Miscellaneous Publications, and Handbooks. They may be bought from the Superintendent of Documents, Government Printing Office, Washington, D. C. Circular 24 of the Bureau of Standards with its supplements comprises a list of all the publications issued by the Bureau to date. Those interested in scientific work in general will find this circular useful for reference purposes. Others desiring lists of the Bureau's publications along specific lines may obtain mimeographed lists of this sort from the Information Section of the Bureau.